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# READING LITERACY IN NEW ZEALAND

Final Results from the Progress in International Reading Literacy Study (PIRLS) and the Repeat of the 1990-1991 Reading Literacy Study (10-Year Trends Study) for Year 5 Students

Research Division

## Summary

In 2001, New Zealand and 34 other countries took part in the first Progress in International Reading Literacy Study (PIRLS-01). New Zealand and eight of the other participating countries also took part in the 10-Year Trends Study, which partially replicated the 1990-1991 IEA<sup>1</sup> Reading Literacy Study.

In New Zealand, these two studies assessed the reading literacy of two different groups of Year 5 students. This report presents, in an international context, an overview of findings from these two studies for New Zealand students.

## Key Findings from PIRLS-01

- The mean score for New Zealand students (529) was higher than the international mean (500). This difference was statistically significant.
- The difference between the mean scores for girls and for boys in New Zealand was one of the largest to be observed internationally.
- The spread of scores for New Zealand students was wider than the spread for students in most other countries.

## Key Findings from 10-Year Trends Study

- As measured by this study, students' overall performance in reading literacy was virtually the same in 2001 (502) as it was in 1990 (498).
- The difference between girls' and boys' mean scores was of the same order in 2001 as it was in 1990.
- A higher proportion of New Zealand students reported speaking a language other than English in the home in 2001 than in 1990, with this increase statistically significant.

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<sup>1</sup> The International Association for the Evaluation of Educational Achievement.

**PIRLS-01 was the first of a cycle of international assessments designed to measure trends in reading achievement at the middle primary level.**

**The 10-Year Trends Study was a partial replication of the IEA Reading Literacy Study that was administered during 1990-1991.**

## INTRODUCTION

### Overview of the Two Reading Studies

**PIRLS-01** was the first in an international four-yearly cycle of assessments designed to measure trends in reading achievement at the middle primary level (Year 5 students in New Zealand).<sup>2</sup> In addition to providing information on student achievement, it also examines the home, class, and school contexts for reading.

The 1990-1991 IEA Reading Literacy Study provided a foundation for the development of a new assessment framework to be used for PIRLS which incorporates the latest approaches to measuring reading literacy.<sup>3</sup>

For PIRLS, reading literacy is defined as:

*“The ability to understand and use those written language forms required by society and/or valued by the individual. Young readers can construct meaning from texts. They read to learn, to participate in communities of readers, and for enjoyment.”* (Campbell et al, 2001, p3)

The framework for PIRLS therefore focuses on three aspects of reading literacy: processes of comprehension; purposes of reading; and reading behaviours and attitudes.

The first two aspects were used to shape the reading assessment in PIRLS-01. The aspect relating to reading behaviour and attitudes was addressed in a student questionnaire. In addition, information about the home and school context for reading was gathered through questionnaires for the students' parents, teachers and school principals, as well as within the student questionnaire.

The **10-Year Trends Study** partially replicated the 1990-1991 IEA Reading Literacy Study.<sup>4</sup> This study was made available to those countries participating in PIRLS that had taken part in the earlier study. The nine countries which took part in both studies were able to gather baseline information for monitoring trends in the future, as well as determining how well their students' reading literacy in 2001 compares with that of their counterparts of 10 years ago.

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<sup>2</sup> The international student population was defined as Grade 4. In New Zealand the students involved were those students who would enter secondary school (Year 9) in 2005.

<sup>3</sup> For further details on the 1990-1991 IEA study framework, see Wagemaker (ed.) (1993). For further details on the PIRLS study framework, see Campbell et al, (2001). *Framework and specifications for PIRLS assessment 2001 – 2<sup>nd</sup> edition*.

<sup>4</sup> In the 10-Year Trends Study, only assessment and background information was collected from participating students. Questionnaires administered to school principals and classroom teachers in the original study were not administered in 2001.

## Countries or education systems involved in the studies

Thirty-five countries or education systems participated in PIRLS-01, and nine of these also took part in the 10-Year Trends Study.<sup>5</sup> They were:

Argentina	Hungary*	New Zealand*
Belize	Iceland*	Norway
Bulgaria	Iran, Islamic Rep.	Romania
Canada (Ontario, Quebec)†	Israel	Russian Federation
Colombia	Italy*	Scotland
Cyprus	Kuwait	Singapore*
Czech Republic	Latvia	Slovak Republic
England	Lithuania	Slovenia*
France	Macedonia, Rep. Of	Sweden*
Germany	Moldova	Turkey
Greece*	Morocco	United States*
Hong Kong, SAR	The Netherlands	

\*These countries were involved in the 10-year Trend Study.

† The provinces of Ontario and Quebec represent Canada only. Hereafter, referred to as Canada (O,Q).

## New Zealand students and schools involved in the studies

In New Zealand, nearly 2,500 Year 5 students from 156 schools took part in PIRLS-01. A second group of about 1,200 students from 73 schools took part in the 10-Year Trends Study. Although 60 schools took part in both studies, the sampling design ensured that no student took part in both studies.

## RESULTS

### PIRLS-01: Reading literacy achievement mean scores

As Figure 1 on page 4 shows, the reading mean for the New Zealand Year 5 students who took part in PIRLS-01 was 529 scale score points.<sup>6</sup> This was significantly higher than the international country mean of 500.<sup>7</sup>

Of the 35 countries which took part in PIRLS-01, the means for 23 countries, including New Zealand, England, Canada (O, Q), the United States, and Scotland, were significantly higher than the international mean.<sup>8</sup>

The New Zealand mean was significantly lower than the means for 11 countries, including Sweden, the Netherlands, England, Canada (O, Q), the United States, and Germany. It was not significantly different from the means for seven other countries, including the Czech Republic, Scotland, Singapore, France, and Greece.

The two studies were administered in countries during 2001. Thirty-five countries participated in PIRLS-01; nine of these took part in the 10-Year Trends Study.

In New Zealand, the two studies involved approximately 3,700 Year 5 students.

In PIRLS-01, the mean score for New Zealand Year 5 students (529) was statistically significantly higher than the international mean (500).

<sup>5</sup> The Comparative Education Research Unit, within the Research Division of the Ministry of Education, was responsible for carrying out the PIRLS-01 and 10-Year Trends Study activities in New Zealand.

<sup>6</sup> Item Response Theory (IRT) scale scores summarises the reading achievement results on a scale with a mean of 500 and a standard deviation of 100. For further details, please refer to the *PIRLS 2001 Technical Report* referenced at the end of this report.

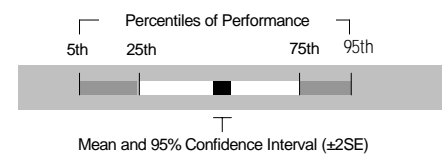
<sup>7</sup> The use of 'significant' hereafter means in terms of 'statistical significance'.

<sup>8</sup> The mean scores for two countries – Slovenia and Norway – were not significantly different from the international mean. The means for 10 countries, including Argentina and Belize, were significantly below the international mean.

**Figure 1: Reading achievement scores for participating countries**

Countries	Distribution of reading achievement scores	Mean scale score	Years of formal schooling	Mean age
Sweden		▲ 561 (2.2)	4	10.8
† Netherlands		▲ 554 (2.5)	4	10.3
†2a England		▲ 553 (3.4)	5	10.2
Bulgaria		▲ 550 (3.8)	4	10.9
Latvia		▲ 545 (2.3)	4	11.0
* 1 Canada (O,Q)		▲ 544 (2.4)	4	10.0
1 Lithuania		▲ 543 (2.6)	4	10.9
Hungary		▲ 543 (2.2)	4	10.7
† United States		▲ 542 (3.8)	4	10.2
Italy		▲ 541 (2.4)	4	9.8
Germany		▲ 539 (1.9)	4	10.5
Czech Republic		● 537 (2.3)	4	10.5
<b>New Zealand</b>		<b>529 (3.6)</b>	5	10.1
† Scotland		● 528 (3.6)	5	9.8
Singapore		● 528 (5.2)	4	10.1
2a Russian Federation		● 528 (4.4)	3 or 4	10.3
Hong Kong, SAR		● 528 (3.1)	4	10.2
France		● 525 (2.4)	4	10.1
2a Greece		● 524 (3.5)	4	9.9
Slovak Republic		▼ 518 (2.8)	4	10.3
Iceland		▼ 512 (1.2)	4	9.7
Romania		▼ 512 (4.6)	4	11.1
2b Israel		▼ 509 (2.8)	4	10.0
Slovenia		▼ 502 (2.0)	3	9.8
<b>International mean</b>		<b>500 (0.6)</b>	<b>4</b>	<b>10.3</b>
Norway		▼ 499 (2.9)	4	10.0
Cyprus		▼ 494 (3.0)	4	9.7
Moldova, Rep. of		▼ 492 (4.0)	4	10.8
Turkey		▼ 449 (3.5)	4	10.2
Macedonia, Rep. of		▼ 442 (4.6)	4	10.7
Colombia		▼ 422 (4.4)	4	10.5
Argentina		▼ 420 (5.9)	4	10.2
Iran, Islamic Rep. of		▼ 414 (4.2)	4	10.4
Kuwait		▼ 396 (4.3)	4	9.9
‡ Morocco		▼ 350 (9.6)	4	11.2
Belize		▼ 327 (4.7)	4	9.8

* Ontario (Canada)		▲ 548 (3.3)	4	9.9
* Quebec (Canada)		● 537 (3.0)	4	10.2



- ▲ Country mean significantly higher than New Zealand mean.
- Country mean not significantly different from New Zealand mean.
- ▼ Country mean significantly lower than New Zealand mean.

\* Canada is represented by the provinces of Ontario and Quebec only. The international mean does not include the results from these provinces separately.

† Met guidelines for sample participation rates only after replacement schools were included.

‡ Nearly satisfying guidelines for sample participation rates after replacement schools were included.

1 National Desired Population does not cover all of International Desired Population. Because coverage falls below 65%, Canada is annotated Canada (O, Q) for the provinces of Ontario and Quebec only.

2a National Defined Population covers less than 95% of National Desired Population.

2b National Defined Population covers less than 80% of National Desired Population.

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

Source: Mullis, Martin, Gonzalez, & Kennedy, 2003 with minor adaptations.

Figure 1 also shows the number of years' schooling and the mean age of the students assessed in PIRLS-01. It is interesting to note that students in the higher-performing countries (such as Sweden, Bulgaria, and Latvia) tended to be, on average, older by up to one year than New Zealand students, although there were exceptions, such as students from England and the Netherlands. However, as noted by the international researchers, because students in New Zealand (as in England and Scotland) had started school at age five, they had received at least one more year of schooling than many of their international counterparts, who had started school at age six or seven.

### **Range of scores among students**

As well as presenting the mean scores, Figure 1 also highlights the large spread of scores among students for many countries. Table 1 presents the range of actual scores at various percentile points for a selection of countries. Each percentile point reported in the table indicates the percentage of students performing below and above that point on the achievement scale. For example, 25% of New Zealand Year 5 students achieved below 470 and 75% achieved above 470.

**Table 1: Distribution of reading achievement scores for selected countries**

Countries	Percentiles				
	5th	25th	50th	75th	95th
Canada (O, Q)	419	498	547	594	658
England	395	501	559	612	685
<b>New Zealand</b>	<b>360</b>	<b>472</b>	<b>537</b>	<b>593</b>	<b>668</b>
Scotland	378	476	534	586	658
Singapore	348	479	540	592	658
United States	389	492	551	601	663

*Source: Mullis, Martin, Gonzalez, & Kennedy, 2003.*

For New Zealand, as Table 1 shows, the difference between the lowest achieving students (the bottom 5%, at the 5<sup>th</sup> percentile) and the highest achieving students (the top 5%, at the 95<sup>th</sup> percentile) was 308 scale score points. This is large in comparison with most other high-performing countries. However, England (290) and Singapore (310) had a similarly large difference.

In New Zealand, the range between the two points representing the performance of the 'middle' group of students – the 25<sup>th</sup> and 75<sup>th</sup> percentiles – was 121 scale score points. This, too, was comparatively wide. In most countries, the range for this middle group was around 100 scale score points. For England it was 111, and for Singapore it was 113.

### **Reading achievement by gender**

The mean score for girls was higher than the mean score for boys in all participating countries, and in all cases the difference was statistically significant. The difference between girls' and boys' mean scores in New Zealand was 27 scale score points, compared with the international mean difference of 20 scale score points. While the difference in New Zealand was the fourth largest to be observed internationally, it was about the same as the observed difference in, for example, England (22) and Singapore (24), but larger than the observed difference in Scotland (17), Canada (O, Q)(17), and the United States (18).

Compared with many countries, New Zealand had one of the largest spread of scores.

Girls in all countries, on average, achieved significantly higher reading scores than boys. The difference between New Zealand girls' and boys' mean scores was one of the largest internationally.

In New Zealand, 29% of girls reached the upper quartile (this is the level achieved by the top 25% of students within New Zealand), compared with 21% of boys, while 55% of girls reached the New Zealand median, compared with 45% of boys. This pattern of results reflects the way girls and boys performed, on average, internationally.

### 10-Year Trends Study: Reading literacy achievement

The 10 Year-Trend Study enabled results for performance in reading literacy in 2001 to be compared with results from the 1990-1991 IEA Reading Literacy Study.<sup>9</sup> To some extent, the 10-Year Trends Study also provides more understanding of New Zealand's performance relative to other countries in PIRLS-01.

A number of changes have occurred in New Zealand as a whole, as well as in the New Zealand education system since 1990, that may provide some insight when interpreting these results. These include a change in the demographic profile of the student population at the primary school level, due in part to immigration, as well as the introduction of a new English curriculum during the mid-1990s.

Table 2 presents the findings for the nine countries participating in the 10-Year Trends Study.<sup>10</sup> The countries are listed in order of results over the decade, from those with the largest increase in mean achievement to those where there was a decrease.

**Table 2: The 10-Year Trends Study – achievement in reading literacy in nine countries, 1990-1991 and 2001**

Countries	1991 Mean scale score	2001 Mean scale score	Difference 1991 to 2001	Years of formal schooling*
Greece	466 (4.5)	507 (5.9)	▲ 41 (7.4)	4
Slovenia	458 (3.2)	493 (3.7)	▲ 36 (4.9)	3
Iceland	486 (1.5)	513 (3.5)	▲ 27 (3.7)	4
Hungary	459 (4.0)	475 (3.9)	▲ 16 (5.6)	3
Italy	500 (5.4)	513 (4.4)	● 12 (6.9)	4
Singapore	481 (3.6)	489 (7.9)	● 8 (8.7)	3
<b>New Zealand</b>	<b>498 (4.1)</b>	<b>502 (5.3)</b>	<b>● 4 (6.8)</b>	<b>5</b>
United States	521 (3.2)	511 (6.3)	● -10 (7.1)	4
Sweden	513 (4.2)	498 (3.9)	▼ -15 (5.7)	3

▲ 2001 country mean significantly higher than 1991 country mean.

● 2001 country mean not significantly different from 1991 country mean.

▼ 2001 country mean significantly lower than 1991 country mean.

\* The same in both assessments.

Source: Adapted from Martin, Mullis, Gonzalez, & Kennedy, 2003.

<sup>9</sup> Countries participating in the 10-Year Trends Study in 2001 were required to administer the assessment to the same grade as they did in 1990 or 1991. This meant that in some countries, the two studies (PIRLS-01 and 10-Year Trends) assessed students in two different grades.

<sup>10</sup> Note that the mean scores for 1990-1991 are different from those reported in Wagemaker (ed.) (1993). This is because a different Item Response Theory model was used to rescale the original 1990-1991 data in order to make comparisons with the information collected in 2001. Although numerically the mean scores are different, the differences between the countries are about the same.

The 10-Year Trends Study shows that New Zealand Year 5 students, on average, achieved as well as their 1990 counterparts.

As shown in Table 2, there was virtually no change in New Zealand students' overall mean achievement over the decade. Similar to their overall reading performance, Year 5 students' performance on two of three reading domains that were assessed, narrative texts and expository texts, was about the same in 2001 as it was in 1990. However, there was a significant increase in the mean performance on document texts over this period.

There was no statistically significant change in the difference between New Zealand girls' and boys' mean scores over the decade. In 2001, the mean score for girls was 35 scale score points higher than the mean score for boys, compared with a difference of 29 scale score points in 1991.

### **PIRLS-01: Reading for literary experience and reading to acquire and use information**

The PIRLS assessment of reading literacy focussed on two overarching 'purposes' that account for most of the reading undertaken by students both in and out of school<sup>11</sup>:

- Reading for literary experience – the reader becomes involved in imagined events, settings, actions, consequences, characters, atmosphere, feelings and ideas, an appreciation of language and knowledge of literary forms to the text. This is often accomplished through reading fiction.
- Reading to acquire and use information – the reader engages with types of texts where students can understand how the world is and has been, and why things work as they do. Texts take many forms, but one major distinction is between those organised chronologically and those organised non-chronologically. This area is often associated with information articles and instructional texts.

Figure 2 shows the results for this aspect of PIRLS assessment.

In reading for literary purposes, New Zealand's mean scale score was 531, significantly higher than the international mean of 500. Sweden and England (both with 559) had the highest mean scores.

In reading for informational purposes, New Zealand's mean scale score was 525, again significantly higher than the international mean of 500. Sweden again had the highest mean score (559), while the mean for England was 546.

For many countries, there were some differences in performance in reading for one purpose compared with the other. New Zealand Year 5 students, like those in, for example, the United States, Iceland, and Norway, achieved, on average, a significantly higher score in reading for literary purposes than in reading for informational purposes. In some countries, such as Scotland, Sweden, and the Netherlands, there was no significant difference between the two scores; but in other countries, such as France and Hong Kong, SAR, the mean score in reading for informational purposes was the higher of the two.

**The 10-Year Trend Study showed very little change in the difference between New Zealand girls' and boys' performance over the 10-year period, with girls, on average, out-performing boys.**

**New Zealand Year 5 students' performance was relatively better when reading for literary purposes than when reading for informational purposes.**

<sup>11</sup> For further details see Campbell et al, 2001 referenced at the end of this report.

**Figure 2: Achievement on Reading for Literary Purposes and for Informational Purposes**

Countries	Mean <i>Literary</i> scale score	Countries	Mean <i>Informational</i> scale score
Sweden	▲ 559 (2.4)	Sweden	▲ 559 (2.2)
<sup>†2a</sup> England	▲ 559 (3.9)	<sup>†</sup> Netherlands	▲ 553 (2.6)
<sup>†</sup> Netherlands	▲ 552 (2.5)	Bulgaria	▲ 551 (3.6)
<sup>†</sup> United States	▲ 550 (3.8)	Latvia	▲ 547 (2.3)
Bulgaria	▲ 550 (3.9)	<sup>†2a</sup> England	▲ 546 (3.6)
Hungary	▲ 548 (2.0)	* <sup>1</sup> Canada (O,Q)	▲ 541 (2.4)
<sup>1</sup> Lithuania	▲ 546 (3.1)	<sup>1</sup> Lithuania	▲ 540 (2.7)
* <sup>1</sup> Canada (O,Q)	▲ 545 (2.6)	Germany	▲ 538 (1.9)
Italy	▲ 543 (2.7)	Hungary	▲ 537 (2.2)
Latvia	● 537 (2.2)	Hong Kong, SAR	▲ 537 (2.9)
Germany	● 537 (1.9)	Czech Republic	▲ 536 (2.7)
Czech Republic	● 535 (2.3)	Italy	▲ 536 (2.4)
<b>New Zealand</b>	<b>531 (3.9)</b>	<sup>†</sup> United States	● 533 (3.7)
<sup>†</sup> Scotland	● 529 (3.5)	France	● 533 (2.5)
Singapore	● 528 (5.6)	<sup>2a</sup> Russian Federation	● 531 (4.3)
<sup>2a</sup> Greece	● 528 (3.3)	Singapore	● 527 (4.8)
<sup>2a</sup> Russian Federation	● 523 (3.9)	<sup>†</sup> Scotland	● 527 (3.6)
Iceland	▼ 520 (1.3)	<b>New Zealand</b>	<b>525 (3.8)</b>
France	▼ 518 (2.6)	Slovak Republic	● 522 (2.7)
Hong Kong, SAR	▼ 518 (3.1)	<sup>2a</sup> Greece	● 521 (3.7)
Slovak Republic	▼ 512 (2.6)	Romania	▼ 512 (4.6)
Romania	▼ 512 (4.7)	<sup>2b</sup> Israel	▼ 507 (2.9)
<sup>2b</sup> Israel	▼ 510 (2.6)	Moldova, Rep. of	▼ 505 (4.7)
Norway	▼ 506 (2.7)	Iceland	▼ 504 (1.5)
<b>International mean</b>	<b>500 (0.6)</b>	Slovenia	▼ 503 (1.9)
Slovenia	▼ 499 (1.8)	<b>International mean</b>	<b>500 (0.7)</b>
Cyprus	▼ 498 (2.5)	Norway	▼ 492 (2.8)
Moldova, Rep. of	▼ 480 (3.7)	Cyprus	▼ 490 (3.0)
Turkey	▼ 448 (3.4)	Turkey	▼ 452 (3.8)
Macedonia, Rep. of	▼ 441 (4.5)	Macedonia, Rep. of	▼ 445 (5.2)
Colombia	▼ 425 (4.2)	Colombia	▼ 424 (4.3)
Iran, Islamic Rep. of	▼ 421 (4.5)	Argentina	▼ 422 (5.4)
Argentina	▼ 419 (5.8)	Iran, Islamic Rep. of	▼ 408 (4.6)
Kuwait	▼ 394 (3.8)	Kuwait	▼ 403 (4.5)
<sup>‡</sup> Morocco	▼ 347 (8.4)	<sup>‡</sup> Morocco	▼ 358 (10.9)
Belize	▼ 330 (4.9)	Belize	▼ 332 (4.9)
* Ontario (Canada)	▲ 551 (3.3)	* Ontario (Canada)	▲ 542 (3.2)
* Quebec (Canada)	● 534 (3.0)	* Quebec (Canada)	▲ 541 (2.9)

▲ Country mean significantly higher than New Zealand mean.

● Country mean not significantly different from New Zealand mean

▼ Country mean significantly lower than New Zealand mean.

\* Canada is represented by the provinces of Ontario and Quebec only. The international mean does not include the results from these provinces separately.

<sup>†</sup> Met guidelines for sample participation rates only after replacement schools were included.

<sup>‡</sup> Nearly satisfying guidelines for sample participation rates after replacement schools were included.

<sup>1</sup> National Desired Population does not cover all of International Desired Population. Because coverage falls below 65%, Canada is annotated Canada (O, Q) for the provinces of Ontario and Quebec only.

<sup>2a</sup> National Defined Population covers less than 95% of National Desired Population.

<sup>2b</sup> National Defined Population covers less than 80% of National Desired Population.

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

Source: Mullis, Martin, Gonzalez, & Kennedy, 2003 with minor adaptations.

## PIRLS-01: International benchmarks

The PIRLS-01 reading achievement scale summarises student performance on test items designed to measure a wide range of student comprehension levels and strategies. To help interpret the results, four points on the achievement scale were identified for use as international benchmarks.<sup>12</sup> These are: the Top 10% benchmark; the Upper Quarter benchmark; the Median benchmark; and the Lower Quarter benchmark.

The performances of all students in all countries which participated in PIRLS-01 were taken into account when defining these benchmarks. For each benchmark, the types of reading skills and strategies that are displayed by students achieving that benchmark can be described.<sup>13</sup> The descriptions for each international benchmark are summarised below. (Appendix A presents examples of questions and students' responses to items that 'anchored' at each of the benchmarks.)

- **Top 10% benchmark** corresponds to the 90<sup>th</sup> percentile. The top 10% of all students in all countries scored above 615 on the PIRLS-01 scale. When reading for literary purposes, students could integrate ideas across a text to provide interpretations of a character; use evidence from the text; or explain the broader significance or theme of the story. When reading for informational purposes, they could use materials, including text, maps or diagrams, to integrate information and their own knowledge, and apply it to situations that might be encountered in the real world.
- **Upper Quarter benchmark** corresponds to the 75<sup>th</sup> percentile and a scale score of 570. This is the point above which the top 25% of all students scored. When reading for literary purposes, students could make comparisons between the two main characters, make inferences to explain relationships, and begin to recognise the use of some language and textual features. When reading for informational purposes, students were able to make one or two inferences beyond the text, and use text-based evidence to support one of their inferences.
- **Median benchmark** corresponds to the 50<sup>th</sup> percentile (or median) and a scale score of 510. This is the point above which the top half of all students scored. When reading for literary purposes, students could recognise and state relationships between events, recognise the overall message of the story, identify elements of the story structure, and make elementary interpretations of a character's actions and aim. When reading for information purposes, students could make inferences to locate and extract information, and locate the appropriate section of a leaflet containing text, tables, a map, and pictures.
- **Lower Quarter benchmark** corresponds to the 25<sup>th</sup> percentile and a scale score of 435, above which 75% of all students scored. When reading for literary purposes, students could retrieve and reproduce explicitly stated details about a character; locate the relevant part of the story, and use it to make inferences clearly suggested by the text. When reading for informational purposes, students could locate and reproduce explicitly stated facts, as well as locate the sentence with relevant information, and use it to make inferences clearly suggested by the text.

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<sup>12</sup> The Scale Anchoring method was used by the international researchers to develop the descriptions of student performance at the different points. This methodology is described in the *PIRLS 2001 Technical Report* referenced at the end of this report.

<sup>13</sup> The descriptions at each benchmark are cumulative. For example, students who have reached the Upper Quarter benchmark also demonstrate the skills required at the two lower benchmarks.

New Zealand had a relatively high proportion of students reaching the international Top 10% benchmark.

### How New Zealand Year 5 students performed against the international benchmarks

The proportions of New Zealand Year 5 students reaching the international benchmarks for reading in PIRLS-01 are shown in Table 3. As a comparison, the proportions for a selection of other countries are also included.

**Table 3: Proportions of New Zealand Year 5 students and students from a selection of countries reaching the PIRLS-01 international reading achievement benchmarks**

Countries	Percentages of students reaching . . .			
	Top 10% internationally	Upper Quarter internationally	Median	Lower Quarter internationally
England	24	45	72	90
Bulgaria	21	45	72	91
Sweden	20	47	80	96
United States	19	41	68	89
<b>New Zealand</b>	<b>17</b>	<b>35</b>	<b>62</b>	<b>84</b>
Canada (O,Q)	16	37	69	93
Singapore	15	35	64	85
Scotland	14	32	62	87
France	9	26	60	90
Hong Kong, SAR	6	26	64	92
Norway	6	19	48	80

Source: Mullis, Martin, Gonzalez, & Kennedy, 2003.

New Zealand had the fifth highest percentage (17%) of students reaching the Top 10% benchmark, after England, Bulgaria, Sweden, and the United States. Well over half (62%) of New Zealand students reached the Median benchmark, compared with, for example, 80% of Swedish students, 72% of English students and 60% of French students. While 96% of Swedish students, 90% of English students and 89% of United States students reached the Lower Quarter benchmark, 84% of New Zealand students did so.

### Contextual factors – Key findings from students and their parents

Information on students' home backgrounds, how they spent their time out of school, their attitudes towards reading, and their reading activities in the home and in school was gathered from the students taking part in PIRLS-01. Information was also collected from parents about their children's experiences in learning to read, their own reading, and literacy resources in the home.

To summarise the information concisely, students' responses to sets of questions were often combined to form indices. These indices are more comprehensive (describing a general concept or activity) and more reliable (based on more information) than the individual results for component questions. To help interpret each index, students were placed, according to their responses, into one of three categories: high, medium or low level. The high level of each index corresponded to activities or conditions associated with good educational practice and high reading achievement.

### ***Literacy related activities in the home***

To provide information about students' early literacy activities, parents were asked to indicate how frequently they or someone else in the home engaged in six literacy-related activities with their child before the child began primary school:

- Read books
- Tell stories
- Sing songs
- Play with alphabet toys
- Play word games
- Read aloud signs and labels.

The Early Home Literacy Activities (EHLA) Index summarised parents' responses. Students in the high category had parents who reported engaging in the six activities 'often', on average, whereas those in the low category had parents who reported that, on average, they 'never or almost never' did so.

Among New Zealand Year 5 students, 68% were in the high category of the EHLA Index, and 6% were in the low category, according to their parents' responses. The highest levels of engagement were reported in England (with 83% in the high category and 3% in the low category) and Scotland (82% and 2% respectively).

In every country, there was a positive relationship between engaging in early literacy activities, and students' reading scores. As would be expected, the differences between the mean achievement scores of students in the high and low categories were very marked.

However, New Zealand was one of five countries<sup>14</sup> with a marked difference of 30 scale score points or more between students in the high and medium categories. New Zealand students in the high category had a mean score of 551, compared with 515 for students in the medium category, a difference of 36 points. Internationally, there was a 20-point advantage in scores, on average, for students in the high category, compared with those in the medium category.

### ***Languages spoken in the home***

On average, across countries there was a strong relationship between how frequently the language of the PIRLS-01 test was spoken at home, and performance on the PIRLS-01 assessment.

New Zealand students were tested in English or Maori.<sup>15</sup> Eighty-four percent of New Zealand Year 5 students reported 'always or almost always' speaking the test language in the home.<sup>16</sup> These students scored, on average, 55 scale score points higher than those 14% of students who 'sometimes' spoke the test language at home.<sup>17</sup> This compares with the international mean difference of 34 scale score points, and with differences of 49 scale score points for England, 31 for Scotland, and 45 for the United States.

**Compared with parents in many other countries, New Zealand parents were more likely to report that they engaged frequently in a variety of literacy-related activities prior to their child entering primary school.**

**The difference between the mean reading scores for New Zealand students speaking the language of the test frequently in the home and those who did not was relatively large compared with many other countries.**

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<sup>14</sup> The others were England, Belize, Singapore and the Islamic Republic of Iran.

<sup>15</sup> Testing in Maori was dependent on the student's proficiency in te reo Maori. This assessment was made by the teachers of students who were receiving instruction in Maori.

<sup>16</sup> This compared with England (88%), Scotland (89%), the United States (85%), Singapore (43%), and the international mean of 79%.

<sup>17</sup> Two percent of New Zealand students reported never speaking the language of the test in the home.

A relatively high proportion of New Zealand Year 5 students were from homes considered to be educationally well-resourced (a high number of books, educational aids including a computer, and at least one parent with a university-level education)

New Zealand parents were relatively very positive about their own reading.

Results from the 10-Year Trends Study for New Zealand indicate that in 2001, a significantly smaller proportion of students than in 1990-1991 reported that they ‘always or almost always’ spoke English at home (88% in 2001 compared with 92% in 1990).<sup>18</sup> Moreover, there was a corresponding significant increase in the proportion of students reporting to only ‘sometimes’ speaking English at home over this 10-year period. However, the difference in mean reading scores between 2001 and 1990 for these students in the two categories was not found to be of statistical significance.

### **Home educational resources**

The Home Educational Resources Index (HER) was based on parents’ and students’ responses to questions about resources in their homes. These included the number of books (including children’s books), the presence of four educational aids (computer, study desk for student’s use, books for use by the student, and access to a daily newspaper) and parents’ education.

Approximately one-fifth (21%) of New Zealand students were in the high category on the HER Index. This meant that they had more than 100 books, more than 25 children’s books, and three or four educational aids (including a computer) in the home, and at least one parent had completed a ‘university’ education.<sup>19</sup> This was the sixth highest proportion internationally. The countries with higher proportions were the United States (37%), Norway (33%), England (27%), Sweden (26%), and Iceland (23%). The international mean for the proportion of students in this category was 13%.

Only 3% of New Zealand students were in the low category. This meant that they had 25 or fewer books, 25 or fewer children’s books, and two or fewer educational aids in the home, and neither parent had more than some secondary education. The international mean for the proportion of students in this category was 13%.

There were substantial differences in the mean reading achievement of students at the three levels (i.e. high, medium, and low) of the HER Index in every country, including New Zealand. The difference between the mean scores for New Zealand students in the high and low categories was 130 scale score points. This was considerably higher than the difference between the international means for students in these two categories, which was 105 scale score points.

### **Parents’ attitudes towards reading**

The parents of the students participating in PIRLS-01 were asked about the extent to which they agreed or disagreed with the following statements:

- I read only if I have to.
- I like talking about books with other people.
- I like to spend my spare time reading.
- I read only if I need information.
- Reading is an important activity in my home.

The Parents’ Attitudes Towards Reading (PATR) Index was developed to summarise parents’ responses to the statements. The response categories for negatively-worded statements were reversed when constructing the index.

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<sup>18</sup> In New Zealand, the 10-Year Trends Study was administered only in English.

<sup>19</sup> Education levels were determined using *UNESCO’s Institute for Statistics 1997 International Standard Classification of Education*. ‘University’ level education encompassed those who parent(s) who had completed at least ISCED 5B.

Students were assigned to the high category of the index if their parents, on average, agreed a little or a lot to the five statements, while students were assigned to the low category if, on average, they disagreed a lot. Students in the medium category had parents whose responses, on average, fell between these two extremes.

New Zealand parents were generally very positive in their attitudes towards reading, so that 65% of students were in the high category, compared with 53% internationally. Countries with higher proportions of students in the high category included Hungary (74%), Norway (73%), Sweden (71%), England (69%), and Scotland (69%). Just 5% of New Zealand students were in the low category (as was the case internationally).

Across all countries, the relationship between parents' attitudes and student achievement was linear – that is, student achievement was on average higher if parents' attitudes were at the high end of the index, and lower if they were at the low end. For New Zealand, the mean score was 559 for students in the high category and 488 for those in the low category (compared with the international means of 524 and 482).

### ***Students' attitudes towards reading***

In order to gauge how positive students were in their attitudes towards reading, students were asked about their views on reading for enjoyment, and their appreciation of books. Students were asked to indicate the extent to which they agreed with the following statements related to reading:

- I read only if I have to.
- I like talking about books with other people.
- I would be happy if someone gave a book as a present.
- I think reading is boring.
- I enjoy reading.

The Students' Attitudes Towards Reading (SATR) Index summarised students' responses to each of the statements.<sup>20</sup> Students were assigned to the high category if they agreed or agreed a lot with all the statements, while those students who disagreed or disagreed a lot with the statements were assigned to the low category. The medium category reflects all other combinations of responses.

New Zealand students were relatively positive towards reading, with 51% in the high category (the same percentage as the international mean), and 8% of students in the low category (similar to the international average of 6%). Students in England and the United States tended to be less positive, with 44% and 42% respectively in the high category, while Canadian (O,Q), Swedish and Singaporean students tended to be slightly more positive, with 54% in the high category.

Across all countries, girls had more positive attitudes than boys, with significantly higher proportions of girls than boys in the high category of the index. The percentages of New Zealand girls and boys in each category are shown in Figure 3.

**Year 5 students whose parents held positive views about aspects of their own reading typically achieved higher reading scores than students whose parents held more negative views.**

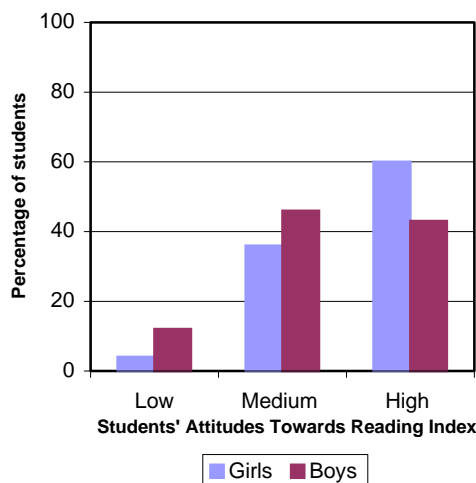
**New Zealand Year 5 students generally had positive attitudes towards reading.**

**Girls in all countries were more likely than boys to hold positive attitudes towards reading. New Zealand was no exception.**

<sup>20</sup> The response categories for negatively-worded statements were reversed when constructing the index.

New Zealand Year 5 students were relatively less confident in their reading ability compared with many of their international counterparts.

**Figure 3: Percentage of New Zealand students at each level of the Students' Attitudes Towards Reading (SATR) Index, by gender**



*The high level of the SATR Index denotes positive or very positive attitudes towards reading whereas the low level of the index denotes negative or very negative attitudes towards reading.*

Although those countries with higher proportions of students in the high category did not necessarily have the highest achieving students internationally, within many countries, attitudes towards reading were linearly related to achievement. That is, students in the high category achieved, on average, a higher reading score than students in the low category. However, in New Zealand's case, students in the high (560 scale score points) and low (507) categories on average achieved higher scores than those in the medium category (499).

### **Students' reading self-concept**

The Students' Reading Self-Concept (SRSC) Index was developed to investigate students' perceptions of their ability in reading, using their responses to three statements on how well they thought they read.<sup>21</sup> Students were asked whether they agreed or disagreed with the following statements:

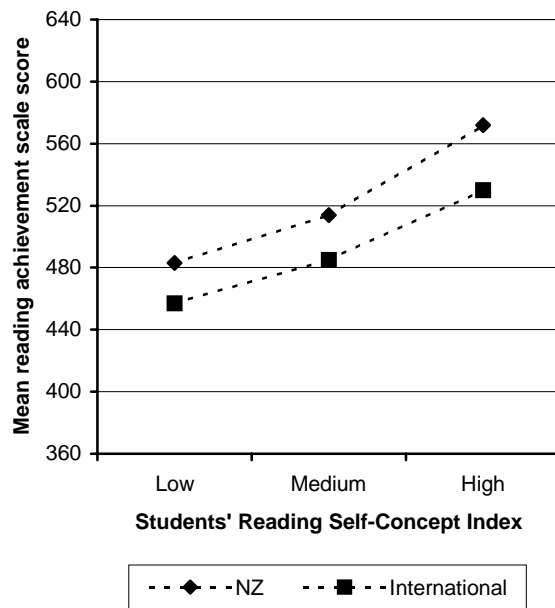
- Reading is very easy for me.
- I do not read as well as other students in my class.
- Reading aloud is very hard for me.

Among New Zealand students, 32% had a high self-concept of their reading ability, somewhat below the international mean of 40%. Students from Italy (56%) and Sweden (54%) were the most positive about their abilities. In the United States and Canada (O, Q), 46% of students had a high self-concept in reading, as did 36% of Scottish students and 33% of English students.

Figure 4 illustrates the relationship between students' self concept in reading, as measured by the index, and reading achievement. Students who had a high self-concept in reading achieved higher scores, on average, than those who had a low self-concept.

<sup>21</sup> The response categories for the two negatively-worded statements were reversed when constructing the index.

**Figure 4: Mean reading achievement for students, in New Zealand and internationally, at each level of the Students' Reading Self-Concept (SRSC) Index**



*The high level of the SRSC Index denotes a high self-concept of reading ability whereas the low level of the index denotes a low self-concept of reading ability.*

On average, across countries, a significantly higher proportion of girls (43%) than boys (36%) were in the high category of the SRSC Index. In New Zealand, 34% of girls were in the high category, compared with 30% of boys. This difference was statistically significant. Also statistically significant in New Zealand, 8% of boys reported a low reading self concept compared to 5% of girls.

#### **Classroom factors – Key findings from teachers and principals**

The following section provides a brief overview of some of the information collected from teachers and school principals about the classroom environment, and aspects of the implemented curricula, as well as the school context for learning, at the time the PIRLS-01 study was undertaken.

#### **Characteristics of teachers<sup>22</sup>**

In New Zealand, 54% of Year 5 students were taught by teachers in their 30s and 40s, compared with about 60% on average internationally. However, in New Zealand, almost one in four Year 5 students were being taught by teachers under 29 years of age, compared with 19% internationally (28% in England, 14% in Scotland, and 13% in the United States ).

The proportion of New Zealand Year 5 students being taught reading by women was 70%, compared with the international mean of 81%. The proportion of students being taught reading by women was 80% in England, 82% in Canada (O, Q), 88% in the United States, and 89% in Scotland.

<sup>22</sup> Responses were from the teachers of a representative sample of students only, and are therefore not necessarily representative of all teachers at this level.

New Zealand principals along with many of their international counterparts were likely to estimate that relatively few (less than 25%) beginning students had a full complement of early literacy skills.

The international data show no clear pattern between the number of in-class instructional hours in reading and reading achievement.

### **Reading readiness**

An important issue is whether beginning students are ready to begin learning in a formal setting, regardless of when they begin school. While there were some exceptions, such as New Zealand, most students in the PIRLS-01 countries began primary education when they were six or seven years old. School principals were asked to estimate how many students entering school could:

- Recognise most of the alphabet
- Read some words
- Read sentences
- Write letters of the alphabet
- Write some words.

Principals' responses were then averaged across these five literacy skills.

In New Zealand, 5% of students were in schools where their principals reported that most (more than 75%) of their beginning students had these early literacy skills. This proportion was in the same order as, for example, Scotland and the Netherlands (both 2%). England, Singapore and Slovenia were the only countries with more than 60% of the PIRLS-01 students in schools where principals reported that most of their beginning students had these early literacy skills.

### **Instructional time**

The mean instruction time spent on reading per week in New Zealand, as reported by teachers, was 6 hours, while the mean instruction time spent on language was 9 hours. These were both above the international means of 5 hours and 7 hours respectively. They were also above those for England and Scotland (both 4 hours and 7 hours). In the United States, teachers reported spending 9 hours on reading, the highest of all countries, and 9 hours on language.

On average, middle primary students spent 24% of their yearly instructional time on reading, and 32% on language instruction and/or activities. The proportions estimated for New Zealand were 24% and 39% respectively. The data reveal no clear pattern of relationships between the number of in-class instructional hours and reading achievement, either across or within countries.

### **Implementation and organisation of reading classes**

Principals reported that New Zealand students were more likely than their international counterparts to be following different reading programmes according to their reading level: 82% of New Zealand Year 5 students were in schools where this was happening, compared with 63% of English students, and 58% of Canadian (O, Q) students. The remaining 18% of New Zealand students were in schools where the same instructional programme was taught at different speeds for different students. No New Zealand students were in schools where the same programme is taught at the same speed for all students.

While teachers often reported using a variety of organisational approaches to teaching reading and/or reading activities, internationally 'teaching reading as a whole class activity' was on average the most favoured single approach, with 38% of students in classes where this was happening. New Zealand and Scottish teachers favoured this approach the least, with just 2% and 1%, respectively, of students in such classes. The most popular approach used by New Zealand and Scottish teachers was 'creating same-ability groups' for instruction – 53% and 66% of students, respectively, were in such classes. The mean proportion internationally for 'creating same-ability groups' was just 9% of students.

### Class size

Across all PIRLS-01 countries, the average class size for reading and language instruction was 26 students, with the majority of students (54%) in classes<sup>23</sup> with between 21 and 30 students. In New Zealand, 69% of Year 5 students were in classes of this size. A further 22% were in classes of 31 or more students. This was close to the international average of 23%. However, 43% of English students were in these larger classes, compared with 18% of Scottish and 9% of United States students. The international researchers note that the relationship between class size and reading achievement is difficult to interpret, since smaller classes are often used both for remedial and for advanced instruction.

### Reading activities

Table 4 summarises some of the information sought from teachers and students about three instructional activities related to reading. The responses from a selection of other countries (all teaching in English) are also provided.

**Table 4: An overview of reading instruction activities for selected countries**

Countries	Percentage of students whose teachers reported various reading activities					
	Students read aloud in small groups/pairs			Students read silently on their own		
	Daily	Weekly	Less than weekly	Daily	Weekly	Less than weekly
Canada (O, Q)	11	37	52	71	24	5
England	23	45	32	76	23	2
<b>New Zealand</b>	<b>26</b>	<b>54</b>	<b>20</b>	<b>92</b>	<b>8</b>	<b>0</b>
Scotland	36	45	18	62	36	2
Singapore	10	45	45	59	35	6
United States	19	51	30	72	23	5
International mean	13	35	52	59	32	9

Countries	Percentage of students whose teachers reported various reading activities					
	Teacher reads aloud to class			Students read aloud to whole class		
	Daily	Weekly	Less than weekly	Daily	Weekly	Less than weekly
Canada (O, Q)	66	26	8	39	40	21
England	72	27	2	40	42	18
<b>New Zealand</b>	<b>78</b>	<b>18</b>	<b>4</b>	<b>12</b>	<b>38</b>	<b>50</b>
Scotland	49	44	7	13	46	42
Singapore	61	35	4	41	46	13
United States	81	16	4	48	40	13
International mean	61	31	9	56	31	13

Countries	Percentage of students whose teachers reported various reading activities					
	Teach strategies for decoding sounds and words			Help understand new vocabulary in texts		
	Daily	Weekly	Less than weekly	Daily	Weekly	Less than weekly
Canada (O, Q)	17	42	41	57	39	4
England	24	51	25	54	42	4
<b>New Zealand</b>	<b>36</b>	<b>44</b>	<b>20</b>	<b>57</b>	<b>38</b>	<b>5</b>
Scotland	28	51	21	53	47	0
Singapore	15	33	52	52	41	7
United States	29	45	26	61	37	1
International mean	23	30	47	72	24	5

Source: Mullis, Martin, Gonzalez, & Kennedy, 2003.

<sup>23</sup> These are results for entire classes, which included composite classes.

As Table 4 shows, New Zealand teachers reported that their students were much more likely to read silently on their own every day than their international counterparts. The students were less likely than most of their international counterparts to read aloud to the whole class, but more likely to read aloud in small groups or pairs. The teachers reported reading aloud to the class more frequently than teachers in other countries, and were more likely than others to teach strategies daily for decoding sounds and words.

### ***Use of library resources***

Almost all New Zealand Year 5 students (99%) attend schools with a school library, and many also have access to classroom libraries. On average internationally, 85% of students were in schools with libraries, and 57% were in schools where most or all classrooms had classroom libraries or a reading corner. Almost all Year 5 students in New Zealand attended schools where most or all classrooms had such facilities, one of the highest proportions internationally.

Despite widespread availability, student access to these facilities internationally was relatively infrequent, with 62% of students, on average, in classes where the teacher reported giving them time to use the classroom library only once a week. The highest levels of use were reported in New Zealand and the United States, where 85% or more of students reportedly had daily use of the classroom library.

Similarly, teachers from New Zealand and the United States reported relatively high levels of visits (at least once or twice a week) to the school library, compared with many other countries. Overall, New Zealand students, along with their American counterparts, used library resources, either in the school library or in the classroom, more than students in any other participating country.

### **School factors – Key findings from principals**

The following section provides a brief overview of some of the information collected from school principals about the school-level context for reading achievement.

#### ***Role of school principal***

Principals in Canada (O, Q), England, New Zealand, Scotland, and the United States reported similar use of their time. For example, unlike the situation in some European countries (such as France and Germany) principals spent relatively little time teaching, and more time on administration. New Zealand principals (34%), like those in several countries including Canada (O, Q) (33%), England (34%), and the United States (28%), reported spending the highest proportion of their time on administrative duties. Internationally, the mean was 23%. The next highest amount of time spent by for New Zealand principals was 18% on staff management and staff development (compared with 20% on average internationally).

#### ***Perceptions of school climate***

The Principals' Perceptions of School Climate (PPSC) Index was developed to measure the extent to which schools offered a positive climate for learning. Principals were asked to describe the climate pertaining to: teachers' job satisfaction; teachers' expectations for student achievement; parental support for student achievement; students' regard for school property; and students' desire to do well. Students were assigned to the high category of the index if their principal typically responded 'high' or 'very high', and to the low category if their principal typically responded 'low' or 'very low'.

No New Zealand principal characterised their school climate, as measured by the index, negatively. Among New Zealand Year 5 students, 63% were in the high category of the PPSC Index, compared with 36% internationally, but the same as the proportion in Scotland (63%), and the United States (62%). The remainder were in the medium category. The mean reading scale score for New Zealand students in the high category was higher (541) than for students in the medium category (511). This trend was also observed internationally (511 compared with 491).

### Availability of school resources

To measure the extent to which shortages or inadequacies of school resources affected schools' capacity to provide instruction, the Availability of Resources (ASR) Index was developed. The school resources covered by this index were: instructional staff; teachers qualified to teach reading; instructional materials; supplies (such as paper and pencils); school buildings and grounds; heating/cooling and lighting systems; instructional space (such as classrooms); special equipment for physically disabled students; computers for instructional purposes; computer software for instructional purposes; computer support staff; library books; and audio-visual resources.

Students attending schools where principals reported that shortage or inadequacy of these resources had 'little' or 'no' effect on instructional capacity were placed in the high category of the index. Students in schools where principals reported that shortages affected instruction to some extent were placed in the medium category. Students in schools where principals reported that shortages impinged on schools' capacity to provide instruction 'a lot' were placed in the low category.

Table 5 presents the percentages at each level of the index for New Zealand and a selection of countries.

**Table 5: The percentages of students at each level of the Availability of School Resources (ASR) Index – New Zealand and selected countries**

Selected Countries*	Percentage of students at each level of the Availability of School Resources (ASR) Index		
	High	Medium	Low
<b>New Zealand</b>	<b>85</b>	<b>15</b>	<b>0</b>
United States	77	22	1
Scotland	77	23	0
Canada (O,Q)	69	28	3
Italy	36	57	7
Bulgaria	27	49	24
Greece	17	52	31
Hong Kong, SAR	0	69	29
International mean	43	39	18

\*Data unavailable for England. Countries are ordered according to proportion of students at the high level of the index.

As Table 5 shows, more than four-fifths (85%) of New Zealand Year 5 students were in schools where principals reported resource shortages or inadequacies had either no or minimal impact on the capacity to provide reading instruction. This proportion was the highest internationally, followed by the Netherlands (82%), Iceland (81%), the United States (77%), and Scotland (77%).

The majority (85%) of New Zealand Year 5 students were in schools where principals had reported that resource shortages or inadequacy of resources had little or no effect on schools' capacity to provide reading instruction.

Relatively few New Zealand Year 5 students attended schools where student absenteeism was considered by their principals to be a moderate or serious problem.

While a high proportion of New Zealand Year 5 students reported they felt safe at school, they were more likely to report incidents of stealing, bullying and being hit or hurt than many of their international counterparts.

### **Student behaviours**

Student absenteeism did not appear to feature as a problem for the majority of participating countries. Only 8% of New Zealand Year 5 students were in schools where principals rated absenteeism as a moderate problem, while just 1% were in schools where principals perceived absenteeism as a serious problem. This compared with international means of 14% (moderate) and 7% (serious).

Students were asked whether they agreed with the statement, 'I feel safe when I'm at school'. Overall, 91% of New Zealand students agreed with this statement, as did 89% internationally, on average.

However, New Zealand students were more likely than students in many other countries to report that incidents of stealing, bullying, and hitting or hurting had occurred against themselves or their classmates within the month prior to the assessment. For example, 42% of New Zealand students reported that they had had something stolen from them, compared with the international mean of 28% (23% of Scottish students, 36% of Canadian (O, Q) students and 35% of American students). Moreover, 38% of New Zealand children reported being bullied, compared with the international mean of 33% (Canada (O, Q), 31%, Scotland, 27%, the United States, 25%, and Sweden only 12%). In New Zealand, 42% of students reported being hit or hurt, compared to the international mean of 32% (the same as for Scotland, 42% and Canada (O, Q), 41%, but higher than the United States, 28%).<sup>24</sup>

In New Zealand and in most other countries, students who reported incidents of stealing had, on average, lower reading achievement than students who did not. The situation was similar for students who reported incidents of bullying.

### **Principals' perceptions of school safety**

Information on principals' responses to the severity of seven student behaviours were summarised in the Principals' Perceptions of School Safety (PPSS) Index. These behaviours included classroom disturbances, cheating, profanity, vandalism, theft, intimidation or verbal abuse of other students, and physical conflict amongst students. While cross-national comparisons are difficult, because of differing perceptions of what constitutes a serious problem, the international researchers found that the incidence of these student behaviours in most countries was generally low, with, on average, only 6% of students in the low category for school safety. In New Zealand, 65% of Year 5 students were in schools where the principal reported the school as safe (compared with 58% internationally), while just 1% were in schools where principals perceived safety to be low.

### **Concluding remarks**

This summary has merely touched on a vast array of descriptive information, particularly contextual data, generated by the study. It is recommended that the findings presented here are not viewed in isolation, and that readers refer to the international publications for more detail. The reports can be viewed on the international PIRLS web site. A national report will also be available on the Ministry of Education's web site later this year, and copies will be distributed to schools soon after that.

*International PIRLS web site: [www.pirls.org](http://www.pirls.org)*

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<sup>24</sup> Data unavailable for England.

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## **For further information in New Zealand**

This report is also available on: [www.minedu.govt.nz/goto/pirls](http://www.minedu.govt.nz/goto/pirls)

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## APPENDIX A

Example 1 shows a question and a fully correct response from a student reaching the **Top 10% benchmark (615)**. Students were asked to compare the hare and a lion in a story where the hare mistakenly thinks a falling fruit is an earthquake, and the lion calms the hare down. To get full credit (3 marks) on this question, students needed to integrate ideas from across the text to support their interpretation of the difference between the two characters.

### Example 1:

Purpose: Literary Experience

3 Points: Full Credit Sample Response

10. You learn what the lion and the hare are like from the things they do in the story. Describe how the lion and the hare are different from each other and what each does that shows this.

② The hare is really worried and foolish and the lion is smart and not afraid of a lot of things. The lion showed him what the earthquake was the hare ran away from the fake earthquake.

Country	% of students full credit
New Zealand	13
England	20
Canada (O,Q)*	13
Scotland	10
Singapore	17
United States	13
International	14

\*Canada is represented by the provinces of Ontario and Quebec only. The international mean does not include the results from these provinces separately.

Example 2 was likely to have been answered correctly by students reaching the international **Upper Quarter benchmark (570)**. The text was about an old man named Laban who was able to get rid of some mice by fooling them into thinking the ceiling was the floor. In this question, students were required to provide their opinion on whether or not the mice were easy to fool, using the text to support their reasoning.

## Example 2:

Purpose: Literary Experience

1 Point: Full Credit Sample Response

11. Do you think the mice were easy to fool? Give **one** reason why or why not.

① No It took two nights to trick them

Country	% of students correct
New Zealand	49
England	61
Canada (O,Q)*	62
Scotland	41
Singapore	50
United States	54
<b>International</b>	<b>37</b>

\*Canada is represented by the provinces of Ontario and Quebec only. The international mean does not include the results from these provinces separately.

In Example 3, likely to be answered correctly by students reaching the **Median benchmark (510)**, students needed to locate a specific part of a text about how children saved pufflings that accidentally landed in their town, to make an inference about the pufflings being in danger of being run over.

## Example 3:

Purpose: Acquire and Use Information

1 Point: Full Credit Sample Response and Results

9. According to the article, which of these is a danger faced by the pufflings?

- A drowning while landing in the sea
- B getting lost in the burrows
- C not having enough fish from their parents
- D being run over by cars and trucks

Country	% of students correct
New Zealand	76
England	76
Canada (O,Q)*	82
Scotland	76
Singapore	76
United States	76
<b>International</b>	<b>71</b>

\*Canada is represented by the provinces of Ontario and Quebec only. The international mean does not include the results from these provinces separately.

Example 4 is a question likely to have answered correctly by students reaching the **Lower Quarter benchmark (435)**. Using the article on ‘Pufflings’, students had to locate and retrieve the information that the puffins came to the island to lay eggs.

**Example 4:**

Purpose: Acquire and Use Information

1 Point: Full Credit Sample Response and Results

3. Why do the puffins come to the island?
- A to be rescued
  - B to look for food
  - C to lay eggs
  - D to learn to fly

Country	% of students correct
New Zealand	81
England	88
Canada (O,Q)*	84
Scotland	83
Singapore	86
United States	83
<b>International</b>	<b>78</b>

\*Canada is represented by the provinces of Ontario and Quebec only. The international mean does not include the results from these provinces separately.